patent pmCS HAS align version 2

FIG. 1

```
                1                                                   50
     PmCS       MNTLSQAIKA YNSNDYELAL KLFEKSAETY GRKIVEFQII KCKEKLSTNS
    PmHAS       MNTLSQAIKA YNSNDYQLAL KLFEKSAEIY GRKIVEFQIT KCKEKLSAHP
Consensus       MNTLSQAIKA YNSNDY#LAL KLFEKSAEiY GRKIVEFQIi KCKEKLSanp

               51                                                  100
     PmCS       YVS....... EDKKNSVCDS SLDIATQLLL SNVKKLTLSE SEKNSLKNKW
    PmHAS       SVNSAHLSVN KEEKVNVCDS PLDIATQLLL SNVKKLVLSD SEKNTLKNKW
Consensus       sVn....... e#eKnnVCDS pLDIATQLLL SNVKKLtLS# SEKNsLKNKW

              101                                                  150
     PmCS       KSITGKKSEN AEIRKVELVP KDFPKDLVLA PLPDHVNDFT WYKNRKKSLG
    PmHAS       KLLTEKKSEN AEVRAVALVP KDFPKDLVLA PLPDHVNDFT WYKKRKKRLG
Consensus       KliTeKKSEN AE!RaVaLVP KDFPKDLVLA PLPDHVNDFT WYKnRKKrLG

              151                                                  200
     PmCS       IKPVNKNIGL SIIIPTFNRS RILDITLACL VNQKTNYPFE VVVADDGSKE
    PmHAS       IKPEHQHVGL SIIVTTFNRP AILSITLACL VNQKTHYPFE VIVTDDGSQE
Consensus       IKPenqn!GL SII!pTFNRp aILdITLACL VNQKTnYPFE V!VaDDGSqE

              201                                                  250
     PmCS       NLLTIVQKYE QKLDIKYVRQ KDYGYQLCAV RNLGLRTAKY DFVSILDCDM
    PmHAS       DLSPIIRQYE NKLDIRYVRQ KDNGFQASAA RNMGLRLAKY DFIGLLDCDM
Consensus       #LlpI!rqYE #KLDIrYVRQ KDnG%QacAa RN$GLRlAKY DF!giLDCDM

              251                                                  300
     PmCS       APQQLWVHSY LTELLEDNDI VLIGPRKYVD THNITAEQFL NDPYLIESLP
    PmHAS       APNPLWVHSY VAELLEDDDL TIIGPRKYID TQHIDPKDFL NNASLLESLP
Consensus       AP#qLWVHSY laELLED#Di tiIGPRKY!D TqnIdae#FL N#asLiESLP

              301                                                  350
     PmCS       ETATNNNPSI TSKGNISLDW RLEHFKKTDN LRLCDSPFRY FSCGNVAFSK
    PmHAS       EVKTNNSVAA KGEGTVSLDW RLEQFEKTEN LRLSDSPFRF FAAGNVAFAK
Consensus       EtaTNNnpaa kgeGn!SLDW RLEqFeKT#N LRLcDSPFR% FaaGNVAFaK

              351                                                  400
     PmCS       EWLNKVGWFD EEFNHWGGED VEFGYRLFAK GCFFRVIDGG MAYHQEPPGK
    PmHAS       KWLNKSGFFD EEFNHWGGED VEFGYRLFRY GSFFKTIDGI MAYHQEPPGK
Consensus       eWLNKsGfFD EEFNHWGGED VEFGYRLFak GcFFrtIDGg MAYHQEPPGK

              401                                                  450
     PmCS       ENETDREAGK SITLKIVKEK VPYIYRKLLP IEDSHIHRIP LVSIYIPAYN
    PmHAS       ENETDREAGK NITLDIMREK VPYIYRKLLP IEDSHINRVP LVSIYIPAYN
Consensus       ENETDREAGK nITLdImrEK VPYIYRKLLP IEDSHInR!P LVSIYIPAYN

              451                                                  500
     PmCS       CANYIQRCVD SALNQTVVDL EVCICNDGST DNTLEVINKL YGNNPRVRIM
    PmHAS       CANYIQRCVD SALNQTVVDL EVCICNDGST DNTLEVINKL YGNNPRVRIM
Consensus       CANYIQRCVD SALNQTVVDL EVCICNDGST DNTLEVINKL YGNNPRVRIM

              501                                                  550
     PmCS       SKPNGGIASA SNAAVSFAKG YYIGQLDSDD YLEPDAVELC LKEFLKDKTL
    PmHAS       SKPNGGIASA SNAAVSFAKG YYIGQLDSDD YLEPDAVELC LKEFLKDKTL
Consensus       SKPNGGIASA SNAAVSFAKG YYIGQLDSDD YLEPDAVELC LKEFLKDKTL

              551                                                  600
     PmCS       ACVYTTNRNV NPDGSLIANG YNWPEFSREK LTTAMIAHHF RMFTIRAWHL
    PmHAS       ACVYTTNRNV NPDGSLIANG YNWPEFSREK LTTAMIAHHF RMFTIRAWHL
Consensus       ACVYTTNRNV NPDGSLIANG YNWPEFSREK LTTAMIAHHF RMFTIRAWHL
```

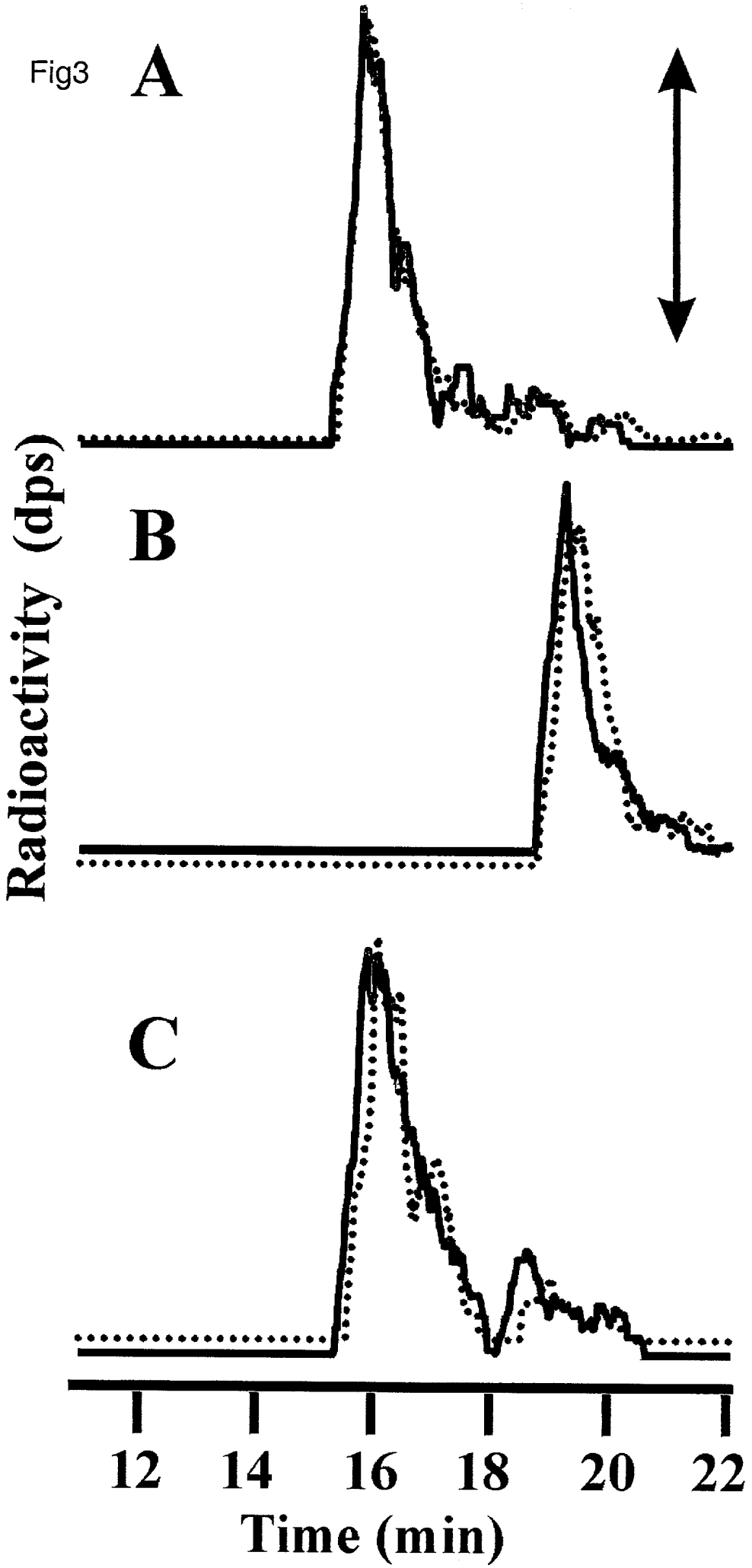
Fig. 1 cont'd.

patent pmCS HAS align version 2

```
            601                                                        650
     PmCS   TDGFNENIEN AVDYDMFLKL SEVGKFKHLN KICYNRVLHG DNTSIKKLGI
    PmHAS   TDGFNEKIEN AVDYDMFLKL SEVGKFKHLN KICYNRVLHG DNTSIKKLGI
Consensus   TDGFNEnIEN AVDYDMFLKL SEVGKFKHLN KICYNRVLHG DNTSIKKLGI

            651                                                        700
     PmCS   QKKNHFVVVN QSLNRQGINY YNYDKFDDLD ESRKYIFNKT AEYQEEMDIL
    PmHAS   QKKNHFVVVN QSLNRQGITY YNYDEFDDLD ESRKYIFNKT AEYQEEIDIL
Consensus   QKKNHFVVVN QSLNRQGInY YNYDeFDDLD ESRKYIFNKT AEYQEEiDIL

            701                                                        750
     PmCS   KDLKLIQNKD AKIAVSIFYP NTLNGLVKKL NNIIEYNKNI FVIILHVDKN
    PmHAS   KDIKIIQNKD AKIAVSIFYP NTLNGLVKKL NNIIEYNKNI FVIVLHVDKN
Consensus   KDiKiIQNKD AKIAVSIFYP NTLNGLVKKL NNIIEYNKNI FVI!LHVDKN

            751                                                        800
     PmCS   HLTPDIKKEI LAFYHKHQVN ILLNNDISYY TSNRLIKTEA HLSNINKLSQ
    PmHAS   HLTPDIKKEI LAFYHKHQVN ILLNNDISYY TSNRLIKTEA HLSNINKLSQ
Consensus   HLTPDIKKEI LAFYHKHQVN ILLNNDISYY TSNRLIKTEA HLSNINKLSQ

            801                                                        850
     PmCS   LNLNCEYIIF DNHDSLFVKN DSYAYMKKYD VGMNFSALTH DWIEKINAHP
    PmHAS   LNLNCEYIIF DNHDSLFVKN DSYAYMKKYD VGMNFSALTH DWIEKINAHP
Consensus   LNLNCEYIIF DNHDSLFVKN DSYAYMKKYD VGMNFSALTH DWIEKINAHP

            851                                                        900
     PmCS   PFKKLIKTYF NDNDLRSMNV KGASQGMFMK YALPHELLTI IKEVITSCQS
    PmHAS   PFKKLIKTYF NDNDLKSMNV KGASQGMFMT YALAHELLTI IKEVITSCQS
Consensus   PFKKLIKTYF NDNDLrSMNV KGASQGMFMk YALaHELLTI IKEVITSCQS

            901                                                        950
     PmCS   IDSVPEYNTE DIWFQFALLI LEKKTGHVFN KTSTLTYMPW ERKLQWTNEQ
    PmHAS   IDSVPEYNTE DIWFQFALLI LEKKTGHVFN KTSTLTYMPW ERKLQWTNEQ
Consensus   IDSVPEYNTE DIWFQFALLI LEKKTGHVFN KTSTLTYMPW ERKLQWTNEQ

            951                  972
     PmCS   IQSAKKGENI PVNKFIINSI TL
    PmHAS   IESAKRGENI PVNKFIINSI TL
Consensus   I#SAKrGENI PVNKFIINSI TL
```

Document ID: 20040229

Fig3



-
+
Type F
HA
Type III
Chon SO4
heparin
kb ladder
Lambda H
kb
23
6
3
2

FIG 4.

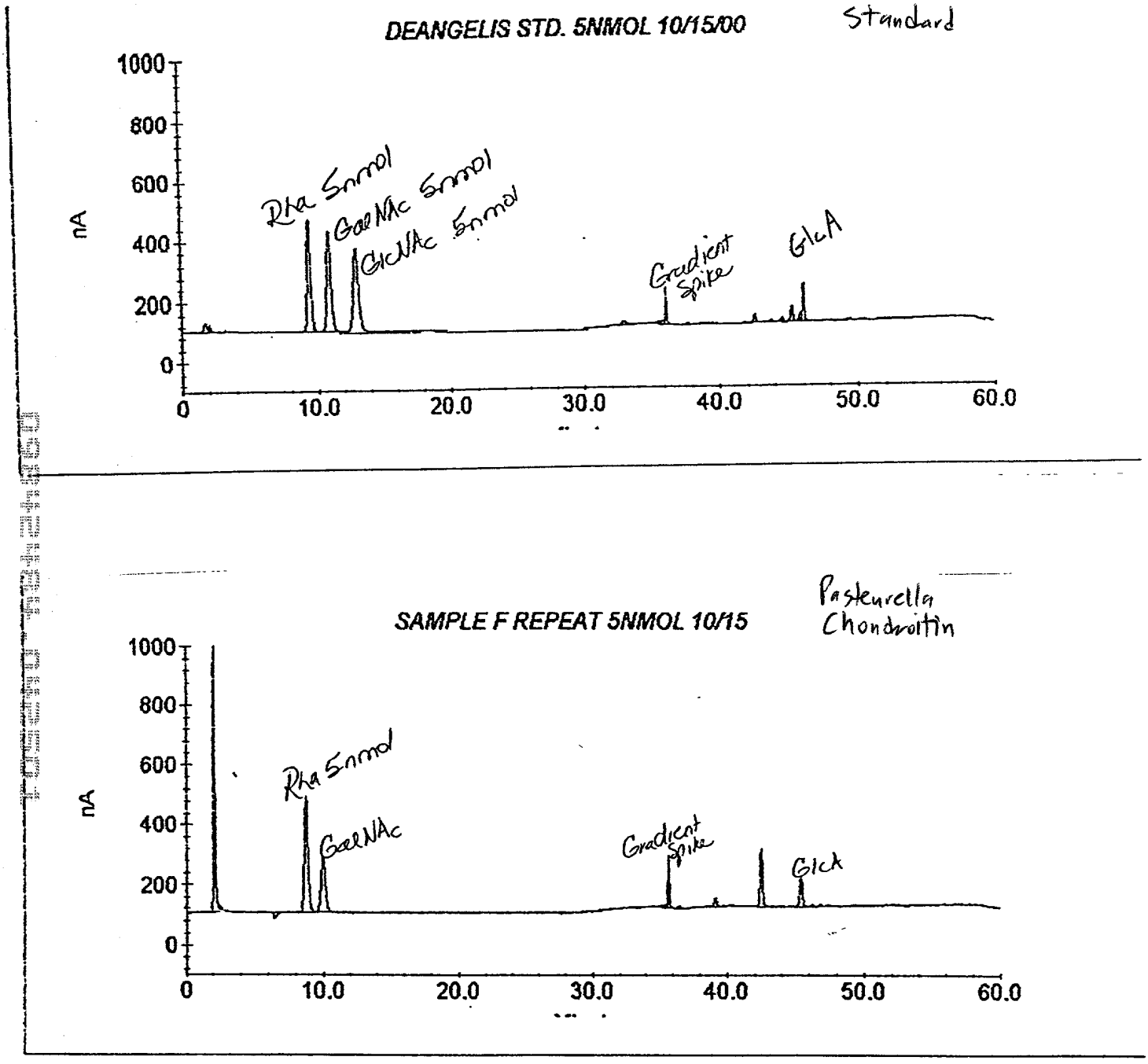

DEANGELIS STD. 5NMOL 10/15/00
Standard
nA
1000
800
600
400
200
0
Rha 5nmol
GalNAc 5nmol
GlcNAc 5nmol
Gradient spike
GlcA
0
10.0
20.0
30.0
40.0
50.0
60.0
SAMPLE F REPEAT 5NMOL 10/15
Pasteurella Chondroitin
nA
1000
800
600
400
200
0
Rha 5nmol
GalNAc
Gradient spike
GlcA
0
10.0
20.0
30.0
40.0
50.0
60.0

Fig. 5

T0534D "4834860

HA Product Size (5 min assay)

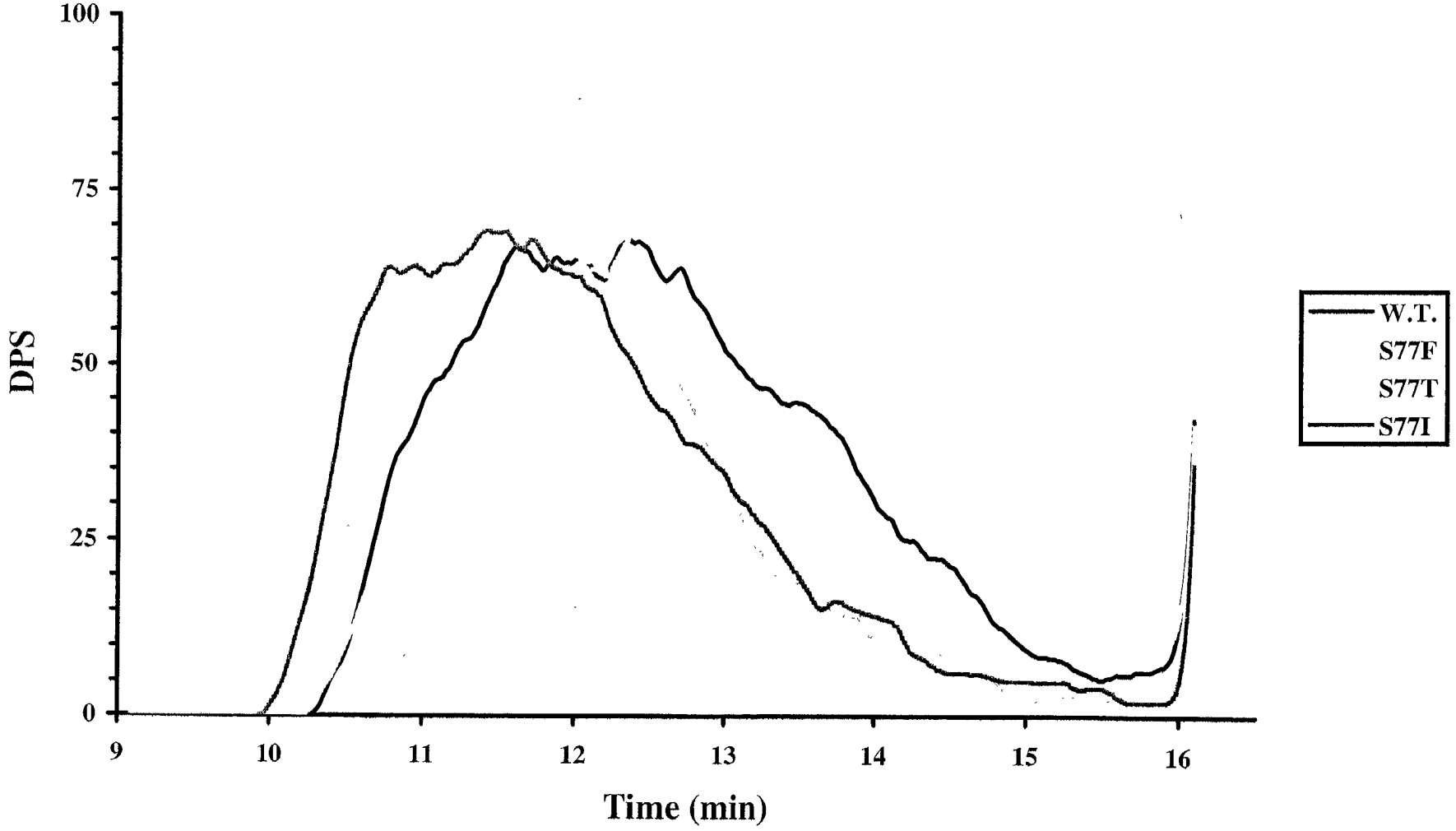
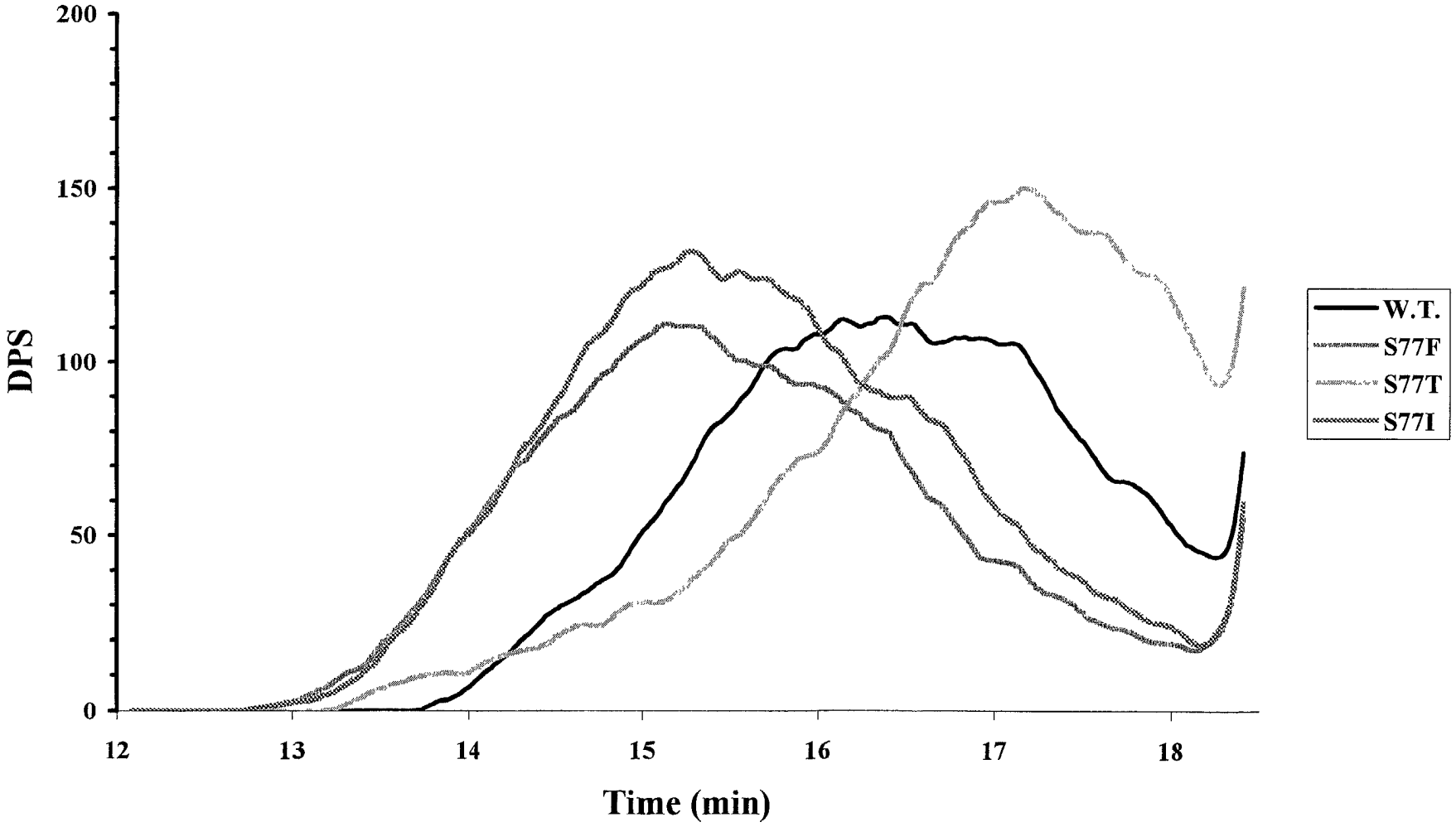


Fig. 6

Tosho Shanghai

Fig. 7

HA Product Size (30 min assay)



NMR of Type F Polymer

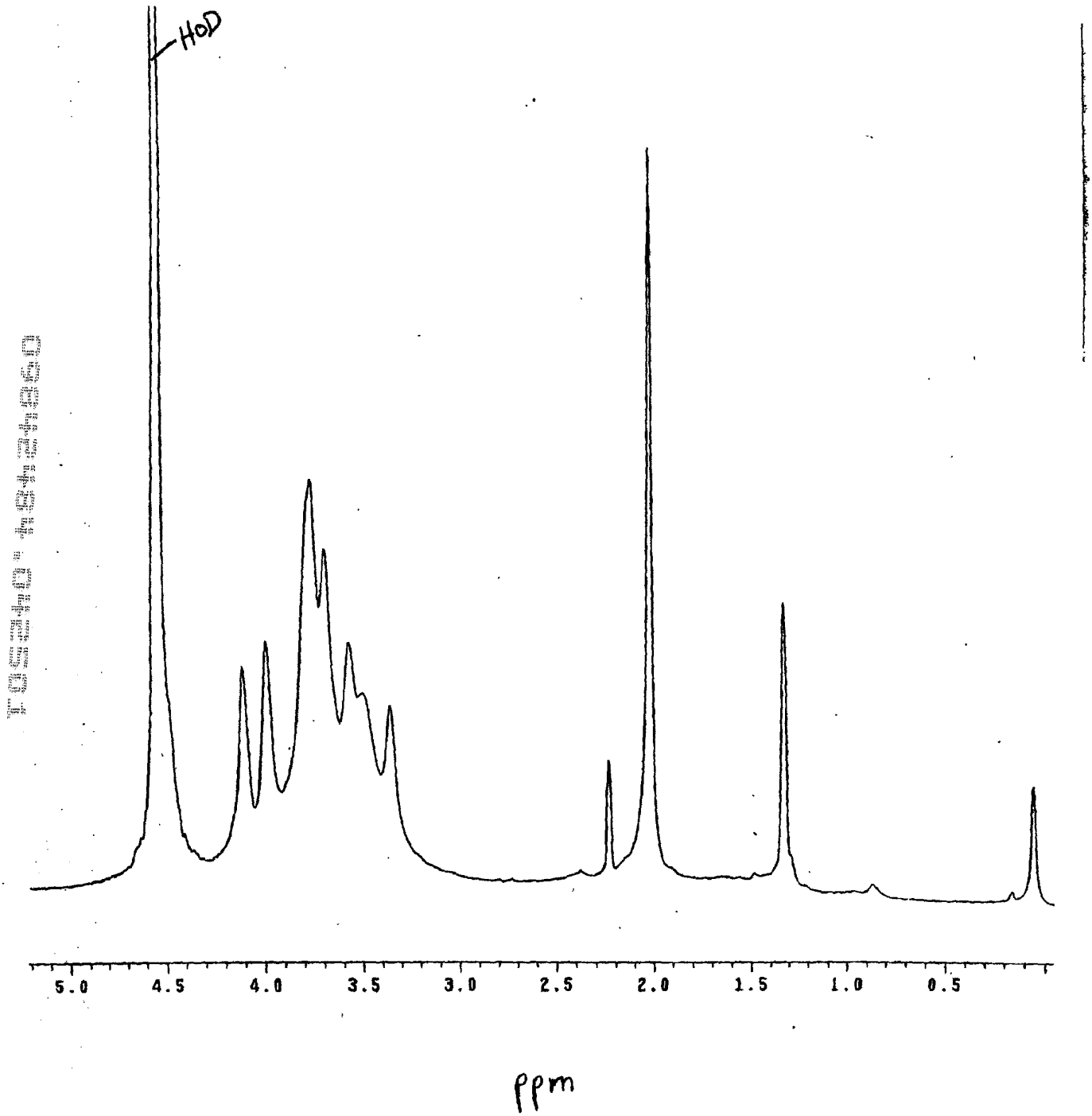
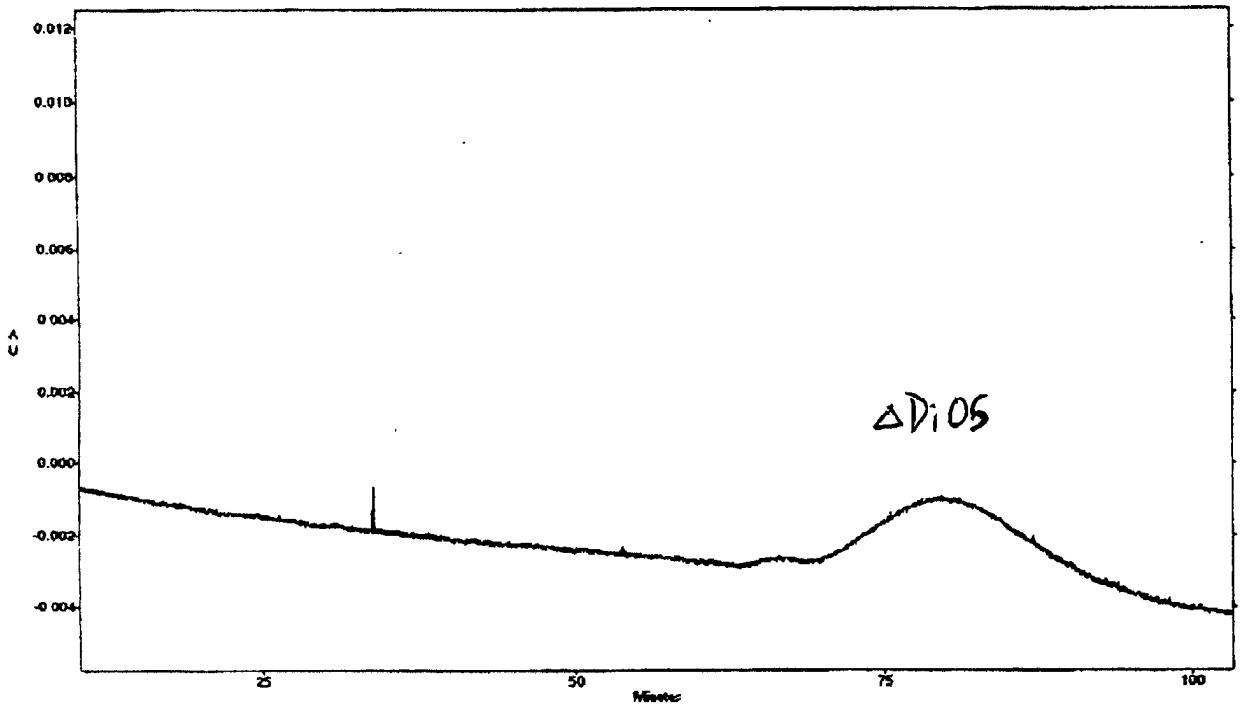


Fig. 8

AB case treatment

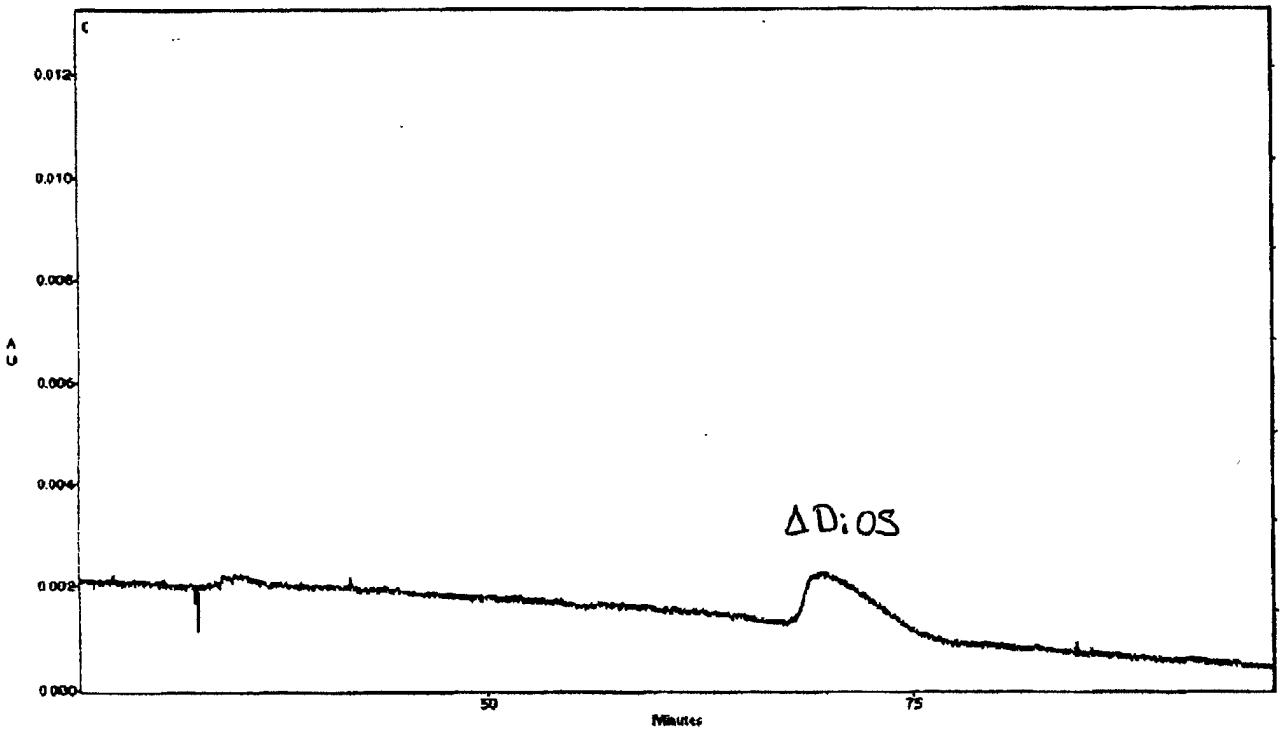


enlarged

minutes

Fig. 9

ACase treatment



minutes

fig. 10